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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Nusrallah Jubran

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PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.

4800 IDS CENTER

80 SOUTH 8TH STREET

MINNEAPOLIS, MN 55402-2100

EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1756

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/749,269	Applicant(s) JUBRAN ET AL.	
	Examiner Janis L. Dote	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 29-34, 47-50, 53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18, 29-34, 47, 49 and 53 is/are allowed.
- 6) ☒ Claim(s) 48, 50 and 54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The examiner acknowledges the amendments to claims 6, 15, and 34 filed on Jan. 16, 2007. Claims 1-18, 29-34, 47-50, 53, and 54 are pending.

2. The objection to the abstract set forth in the office action mailed on Oct. 13, 2006, paragraph 5, has been withdrawn in response to the amended abstract filed on Jan. 16, 2007.

The objections to the specification set forth in the office action mailed on Oct. 13, 2006, paragraph 6, have been withdrawn in response to the amended paragraphs at pages 3-5, 10, 13-15, 23, and 24 of the specification, filed on Jan. 16, 2007.

The objection to the specification set forth in the office action mailed on Oct. 13, 2006, paragraph 7, item (1), has been withdrawn in response to the amended paragraph bridging pages 23 and 24 of the specification, filed on Jan. 16, 2007.

The rejection of claims 6, 15, and 34 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Oct. 13, 2006, paragraph 9, has been withdrawn in response to the amendments to claims 6, 15, and 34 filed on Jan. 16, 2007.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37

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CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The formula recited in claims 5, 14, and 33 lacks antecedent basis in the specification. See the instant specification, pages 24-25, which discloses three particular charge transport compounds represented by formulas (2) through (4). The formula recited in the instant claims is broader than the three disclosed particular compounds because it includes compounds where the groups Y1 and Y2 are not the groups exemplified in formulas (2) through (4), such as the arylamine, diphenylmethylaniline.

Applicants' arguments filed on Jan. 16, 2007, have been fully considered but they are not persuasive.

Applicants assert that the particular formulas (2) through (4) are described as "[s]pecific, **non-limiting examples**" (emphasis added in the original) of suitable transport materials within the general Formula (1), which Y₁ and Y₂ are, each independently, an arylamine group. Applicants assert that other arylamine groups other than those shown in the formulas (2) to (4) are contemplated.

Applicants' assertions miss the point. The chemical formula recited in instant claims 5, 14, and 33 has antecedent basis in originally filed claims 5, 14, and 33. However, for

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the reasons discussed in the objection, the descriptive part of the specification does not provide clear antecedent basis for that chemical formula. That chemical formula is a hybrid between the generic formula (1) and the specific chemical structures shown in formulas (2) to (4).

37 CFR 1.75(d)(1) states that the "terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description" (emphasis added).

Applicants are reminded that to overcome the objection they merely have to amend the specification by incorporating the objected claim language of originally filed claims 5, 14, and 33 in the appropriate location.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 48, 50, and 54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Instant claims 48, 50, and 54 recite that the group Z in the charge transport material formula recited in instant claims 1, 10, and 29, from which claims 48, 50, and 54 depend, respectively, is an aromatic group that comprises two phenylene groups bonded together with a linking group that "comprises S, O, N, or SO₂."

The originally filed specification does not provide an adequate written description of the Z group recited in instant claims 48, 50, and 54. The originally filed specification at page 11, lines 22-27, discloses that the Z linking group can be "an aryl group, which may include any combination of the above aryl groups bonded together either by a bond (as in biphenyl group) or by a linking group (as in stibenyl, diphenylsulfone, an arylamine group). The linking group may include an aliphatic group, an aromatic group, a heterocyclic group, or a combination thereof. Furthermore, either an aliphatic group or an aromatic group within a linking group may comprise at least one heteroatom such as O, S, and N" (emphasis added). In other words, the originally filed specification discloses that the

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aliphatic group or the aromatic group in the linking group that links the two aryl groups may comprise S, O, or N. The phrase "a linking group that comprises S, O, N . . ." recited in the instant claims is broader than the originally disclosed linking group because it includes linking groups that do not comprise an aliphatic group or an aromatic group, such as -NH-. Furthermore, the phrase "a linking group that comprises . . . SO₂" is broader than the disclosed -SO₂- in the originally disclosed diphenylsulfone and in the -1,4-(C₆H₄)-SO₂-1,4-(C₆H₄)- groups in the particular charge transport material formulas (2) through (4) at pages 24-26, because it includes linking groups that are not limited to only -SO₂-, such as aliphatic linking groups that comprise the -SO₂-, e.g., -1,4-(C₆H₄)-CH₂-SO₂-CH₂-1,4-(C₆H₄)-. Nothing in the original disclosure points specifically to what is now claimed.

Applicants' arguments filed on Jan. 16, 2007, have been fully considered but they are not persuasive.

Applicants assert that the linking group Z is described throughout the specification as comprising an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group, for example, page 10, lines 23-24. Applicants assert that aromatic groups are described as aromatic heterocyclic groups, which contain at least one heteroatom and that the specification

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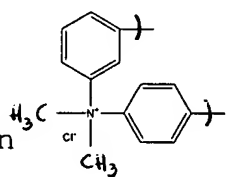
provides non-limiting examples of the aryl group. Applicants conclude that the description of Z in claims 48, 50, and 54 complies with the description in the specification. Applicants refer, for example, to page 11, lines 20-27, of the originally filed specification.

Applicants' assertions are not persuasive. The question is whether the originally filed specification provides an adequate written description so that a person having ordinary skill in the art in reviewing the originally filed specification would have recognized that applicants had possession of the particular sub-generic linking group recited in claims 48, 50, and 54. See, e.g., In re Ruschig, 154 USPQ 118, 122, 123 (CCPA 1967) (requiring "blaze marks"). The answer is "no" for the following reasons.

(1) As noted by applicants, the originally filed specification at page 10, lines 23-24, generically defines the group Z as a "linking group comprising an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group." That broad disclosure encompasses the linking group Z recited in instant claims 48, 50, and 54. However, there is no description in that disclosure that the linking group comprises any group comprising S, O, N, or SO₂, let alone, of the particular sub-generic linking group recited in instant claims 48, 50, and 54.

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(2) As discussed in the rejection above and as noted by applicants, the originally filed specification at page 11, lines 22-27, further discloses that the "aryl group may also include any combination of the above aryl groups [those listed at page 11, lines 20-21, which include phenyl] bonded together . . . by a linking group (as in stilbenyl, diphenyl sulfone, an arylamine group)" (emphasis added). That disclosure does not describe that the linking group can be any group containing S or O, let alone any group comprising N or SO₂, as recited in instant claims 49, 50, and 54. The recitation "linking group comprising . . . N" in the instant claims does not limit the linking group to be only an amine as in an arylamine group but includes groups, such as amido in $-(C_6H_4)-\underline{N(COCH_3)}-(C_6H_4)-$ or a

quaternary ammonium in  . In addition, as discussed in the above rejection, the recitation "linking group comprising . . . SO₂" is not limited to only SO₂ as in diphenylsulfone, i.e., $-(C_6H_4)-\underline{SO_2}-(C_6H_4)-$, but includes e.g., an aliphatic group containing SO₂, e.g., $-(C_6H_4)-\underline{CH_2-SO_2-CH_2}-(C_6H_4)-$, as well as a sulfuric ester, e.g., $-(C_6H_4)-\underline{O-SO_2-O}-(C_6H_4)-$. There is no disclosure in the originally filed specification for these examples. Nor is there any disclosure for the broadly recited

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linking groups comprising O or S in the instant claims, such as a sulfazide, e.g., $-(C_6H_4)-\underline{NH-NH-SO_2}-(C_6H_4)-$, or a dithio $-S-S-$, e.g., $-(C_6H_4)-\underline{S-S}-(C_6H_4)-$, or a carbonyl, e.g., $-(C_6H_4)-\underline{C(O)}-(C_6H_4)-$. A person having ordinary skill in the art would not have recognized that the inventors had possession of the particular sub-generic linking group recited in the instant claims.

(3) As discussed in the rejection above and as noted by applicants, the originally filed specification at page 11, lines 24-27, discloses that the "linking group may include an aliphatic group, an aromatic group, a heterocyclic group, or a combination thereof. Furthermore, either an aliphatic group or an aromatic group within a linking group may comprise at least one heteroatom such as O, S, and N" (emphasis added). In other words, the originally filed specification discloses that the aliphatic group or the aromatic group in the linking group that links the two aryl groups may comprise S, O, or N as a heteroatom, e.g., a furan group. The broadly recited linking group that "comprises S, O, N . . ." in the instant claims includes linking groups that do not comprise an aliphatic group or an aromatic group comprising as a heteroatom S, O, or N, such as the sulfazide, the dithio, or the carbonyl as mentioned above. There is no description of such linking groups at

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page 11, lines 24-27. A person having ordinary skill in the art would not have recognized that the inventors had possession of the particular sub-generic linking group recited in the instant claims.

Thus, for the reasons discussed above and in the rejection, the originally filed specification does not adequately describe the particular sub-generic linking group comprising two phenylenes bonded together with a linking group that "comprises S, O, N, or SO₂" broadly recited in instant claims 48, 50, and 54.

Accordingly, the rejection of claims 48, 50, and 54 stand.

6. Claims 1-18, 29-34, 47, 49, and 53 are allowable over the prior art of record for the reasons set forth in the office action mailed on Oct. 16, 2007, paragraph 12, which are incorporated herein by reference.

7. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD

Apr. 6, 2007

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700